

Anderson localization and distribution of zeros of trigonometric polynomials

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Abstract. Let $V(x)$ be a trigonometric polynomial. Consider characteristic polynomial $f_N(x, E)$ of the problem

- (1) $-\varphi(n+1) - \varphi(n-1) + V(x+nw)\varphi(n) = E\varphi(n)$ $1 \leq n \leq N$ with Dirichlet boundary conditions $\varphi(0) = 0$, $\varphi(N+1) = 0$, here $w \in [0, 1]$ is a parameter. In this talk we will describe a method which allows to study the relation between the equidistribution of zeros of $f_N(\cdot, E)$ with frozen E and the phenomenon of Anderson localization of eigenfunction of (1) on \mathbb{Z} . The talk is based on recent joint work with Wilhelm Schlag.